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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/657,307

09/08/2003

Robert G. Graham

MSH - 261

9731

8131 7590 01/16/2007
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EXAMINER

PATEL, VINIT H

ART UNIT

PAPER NUMBER

1764

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/16/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/657,307

Applicant(s)

GRAHAM, ROBERT G.

Examiner

Vinit H. Patel

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 1-30 and 37-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 31-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 08Sep03.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

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DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of group III, claims 31-36 in the reply filed on October 6, 2006 is acknowledged.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 31-- are rejected under 35 U.S.C. 103(a) as being unpatentable over Schora, USP 3,861,885 in view of Graham, USP 5,979,543.

Regarding the following claims:

31. Schora teaches a manufacturing system for manufacturing carbon black (C5/L25-28), said system comprising: (i) a carbon black furnace 13; (ii) a primary quench cooler 40; (iii) an air pre-heater 8 (a combustor heats the ambient air, prior to entering the carbon black furnace 13); (iv) a secondary quench cooler 42; (v) a waste gas burner 17; (vi) a waste gas heater 17 (in the cyclone chamber); (vii) at least one bag filter 23 and, a heat exchanger (within furnace 13) (Fig. 1).

Graham teaches one or more all ceramic, air-to-air heat exchangers 1 comprising: (I) a first housing 7 having two lateral sides 6, 6', and having an exit end 3

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and an entry end 2, which first housing is comprised of high temperature alumina firebrick (C5/L60- 65), said first housing 7 having a predetermined outside dimension (Fig. 1), said first housing having an outside surface (the shell); (II) a tube sheet 4, 4' located at each of the exit end and the entry end (C5/L58), said tube sheet 4, 4' having an outside dimension, which corresponds essentially to the outside dimension of the first housing 7 (Fig. 1); (III) an exit end housing having an outside dimension essentially equivalent to the outside dimension of the first housing 7 (Fig. 1, the end near to the tube sheet 4'), said exit end housing having an outside surface; said exit end 3 housing being aligned at the exit end near end to the first housing 7 at their respective outside dimensions (Fig. 1), the distal end of the exit end housing 3 having an outside dimension smaller than the near end of the exit end housing ; (IV) an entry end 2 housing having an outside dimension essentially equivalent to the outside dimension of the first housing (Fig. 1, the end near to the tube sheet 4),, said entry end housing 2 having an outside surface, said entry end housing being aligned at the entry end near end to the first housing at their respective outside dimensions (Fig. 1), the distal end of the entry end housing 2 having an outside dimension smaller than the near end of the entry end housing (Fig. 1); (V) said exit end 3 housing and entry end 2 housing being covered with an insulating firebrick which conforms to the outside surface of each of the exit end housing and the entry end housing (C5/L60-65; Fig. 1); (VI) a steel shell 7 (C6/L1), said steel shell covering the entire outside surface of the first housing (Fig. 1) and having an inside surface, the exit end 3 housing and the entry end 2 housing formed in a unitary shell (Fig. 1) such that there is formed a channelled opening by the

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insulating firebrick covering of the first housing (C5/L64-C6/L9), the outside edge of the tube sheet, the insulating firebrick covering, respectively, of the exit end housing and the entry end housing, and the steel shell; said channel (Fig. 8; C9/L49-51) having located therein a ceramic, crushable, gasket 58 at the outside edge of the tube sheet (See Fig. 8 for detail, C9/L49-51, baffle); said channel (Fig. 8, through which tube 5 lies) having located therein a refractory material 57; said steel shell 7 being discontinuous at the interface of the steel shell with the refractory material (C5/L56-65); said discontinuity having two, essentially parallel, near edges (as shown in Fig. 1, as the tubes are in parallel arrangement); (VII) a bellows expansion joint 12 comprising a housing fixedly attached to the outside surface of the steel shell 7 and essentially covering the steel shell 7 at the point that the refractory material meets the steel shell and such that the housing is capable of carrying forced air there-through (Fig. 1); said steel shell 7 having a flat steel strip 60 fixedly attached to the inside surface of the steel shell 7, near the discontinuity and on only one edge of the discontinuity such that when heated, the flat steel strip slides upon the inside surface of the steel shell on the opposite edge of the discontinuity, to form a sliding expansion joint (C11/L63-C12/L3, Fig. 8); each said bellows expansion joint having at least one entry port and one exit port for the entry and exit of air, respectively (See Fig. 12, at 2); (VIII) said tube sheets 4' supporting a plurality of ball joints 25, said ball joints being locked into the tube sheets using an inner tile 23 and an outer tile 17 and a friable, crushable gasket 58 being located in a channeled opening formed by locking the inner tile 23 and outer tile 17 together (See Figs. 5 and 8, showing detail of gasket interface); (IX) ceramic tubes 5 supported on

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each end by the ball joints 25 (Fig. 6, showing ball joint detail, Fig. 3, showing multiple ceramic tubes); (X) Plenum openings through each of the lateral sides of the first housing and extending through the steel shell (Fig. 1, showing gas flow through plenum openings in a perpendicular direction), the insulating firebrick covering, and the high temperature alumina firebrick (C5/L59-65), to allow gas to enter one lateral opening and exit through the opposite lateral opening (Fig. 1, showing gas flow path), and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of Schora to utilize the heat exchanger taught in Graham for the purpose to provide a heat exchanger having the advantage of reduced air leakage that allows for the usage of high pressure air during operation (C1/L40-45).

32. Graham teaches a ceramic, air-to-air indirect heat exchangers contain a ball joint which is a slidable ball joint (C11/L55-67).

33. Graham teaches the ceramic, air-to-air indirect heat exchangers contain a ball joint which is non-slidable (C12/L7-11).

34. Schora teach a process for manufacturing carbon black (abstract), and Schora in view of Graham teaches utilizing the system of Claim 31.

35. Schora teach a process for manufacturing carbon black (abstract), and Schora in view of Graham teaches wherein the ball joints of the system are slidable ball joints(C11/L55-67).

36. Schora teach a process for manufacturing carbon black (abstract), and Schora in view of Graham teaches wherein the ball joints of the system is non-slidable (C12/L7-11).


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vinit H. Patel whose telephone number is (571) 272-0856. The examiner can normally be reached on 9:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

vhp



Glenn Caldarola
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